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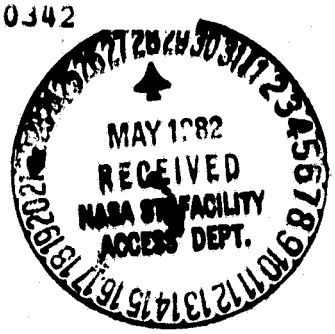
Quarterly Status and Technical Progress Report #8

(Covering the Period 1 October 1981 to 31 December 1981)

NASA Contract NAS5-25957 (MAGSAT)



Investigation of Geomagnetic Field Forecasting and Fluid Dynamics of the Core

Principal Investigator: Edward R. Benton

Department of Astro-Geophysics, University of Colorado

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1 January 1982

1. Problems

None

2. Approach

No new approaches have been developed during this reporting period.

3. Accomplishments

This quarter's effort concentrated on bringing together a number of results achieved on this project, which are discussed in previous progress reports, and writing up three papers for the special MAGSAT issue of Geophysical Research Letters being edited by Dr. R.A. Langel. Those papers present a consise summary of accomplishments to date.

4. Significant Results

These are the subject of the three papers listed below.

5. Publications

The following papers have been submitted to Geophysical Research Letters (the first paper is accepted; the second is accepted after minor revision; no information is yet available on the status of the third).

a. Benton, E.R., Estes, R.H., Langel, R.A., and Muth, L.A., "Sensitivity of Selected Geomagnetic Properties to Truncation Level of Spherical Harmonic Expansions".

b. Voorhies, C.V. and Benton, E.R., "Pole-strength of the Earth from MAGSAT and Magnetic Determination of the Core Radius".

c. Benton, E.R. and Coulter, M.C., "Frozen-flux Upper Limits to the MAGSAT Geomagnetic Gauss Coefficients and Relative Multipole Indices for Earth".

6. Recommendations

None

7. Data Utility

Papers a, b, c above all rely heavily on MAGSAT data. Paper b, especially, makes indispensible use of the Goddard models of the data.